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The pseudobulge of NGC 1292

L. Morelli[1], E. Pompei[2], A. Pizzella[1], J. Méndez-Abreu[1,3], E. M. Corsini[1], L. Coccato[4], R. P. Saglia[4], M. Sarzi[6] and F. Bertola[1]

[1] *Dipartimento di Astronomia, Università di Padova, vicolo dell'Osservatorio 3, I-35122 Padova, Italy.*
[2] *European Southern Observatory, 3107 Alonso de Cordova, Santiago, Chile.*
[3] *INAF-Osservatorio Astronomico di Padova, vicolo dell'Osservatorio 5, I-35122 Padova, Italy.*
[4] *Max-Planck Institut für extraterrestrische Physik, Giessenbachstrasse, D-85748 Garching, Germany.*
[6] *Centre for Astrophysics Research, University of Hertfordshire, College Lane, Hatfield, Herts AL10 9AB*

Abstract. The photometric and kinematic properties of Sb NGC 1292 suggest it hosts a pseudobulge. The properties of the stellar population of such a pseudobulge are consistent with a slow buildup within a scenario of secular evolution.

1. Introduction

The current picture of bulge demography reveals that disk galaxies can host bulges with different photometric and kinematic properties (see Kormendy & Kennicutt 2004, for a review). Classical bulges are similar to low-luminosity ellipticals and are thought to be formed by mergers and rapid collapse. Pseudobulges are disk-like or bar-like components which were slowly assembled by acquired material, efficiently transferred to galaxy center where it formed stars. Pseudobulges can be identified according to their morphologic, photometric, and kinematic properties because they retain a memory of their disky origin. Pseudobulges are expected to be more rotation-dominated than classical bulges which are more rotation-dominated than giant elliptical galaxies. A list of pseudobulges characteristics was compiled by Kormendy & Kennicutt (2004). The more apply, the safer the classification becomes.

2. The bulge of NGC 1292

We derived the structural parameters, stellar kinematics, and line-strength indices for a sample of 14 disk galaxies in groups and clusters (Morelli et al. 2008).

The bulge of the Sb spiral NGC 1292 has a Sérsic index $n = 0.52$ and an apparent flattening which is similar to that of the galaxy disk ($q = 0.6$). The measured $V_{\max}/\sigma_0$ is consistent with being significantly larger than that derived for an oblate spheroid (Fig. 1, left panel). Moreover, the bulge of

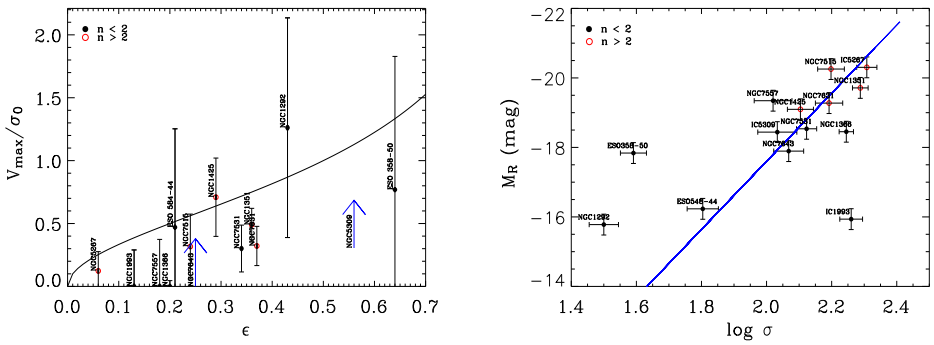

Figure 1. Properties of the bulges studied by Morelli et al. (2008). Filled and open circles correspond to bulges with Sérsic index $n \leq 2$ and $n > 2$, respectively. Left panel: The location of the sample bulges in the $(V_{\rm max}/\sigma_0, \epsilon)$ plane. The continuous line corresponds to oblate-spheroidal systems that have isotropic velocity dispersions and that are flattened only by rotation. Right panel: The location of the sample bulges with respect to the FJ relation by Forbes & Ponman (1999, continuous line).

NGC 1292 is not consistent with the $R-$band Faber-Jackson relation built from Forbes & Ponman (1999, $L \propto \sigma^{3.92}$) as done by Matković & Guzmán (2005). It is characterized by a lower velocity dispersion (or equivalently a higher luminosity) with respect to its early-type counterparts (Fig. 1, right panel). NGC 1292 is also a low-σ (or a high-L) outlier with respect to the relationship found for faint early-type galaxies by Matković & Guzmán (2005, $L \propto \sigma^{2.01}$).

Information about the stellar population give more constraints on its nature and formation process. The bulge population has a intermediate age (3 Gyr) and low metal content ($[Z/{\rm H}] = -0.7$ dex). The α/Fe enhancement is the lowest in our sample ($[\alpha/{\rm Fe}] = -0.12$ dex) suggesting a prolonged star formation history. The presence of emission lines in the spectrum shows that star formation is still ongoing.

3. Conclusions

According to the prescriptions by Kormendy & Kennicutt (2004), the bulge of NGC 1292 is a good candidate to be pseudobulge. The properties of the stellar population of such a pseudobulge are consistent with a slow buildup within a scenario of secular evolution.

References

Forbes D. A., Ponman T. J., 1999, MNRAS, 309, 623
Kormendy J., Kennicutt R. C., 2004, ARA&A, 42, 603
Matković A., Guzmán R., 2005, MNRAS, 362, 289
Morelli L., et al. 2008, MNRAS, submitted